EXHIBIT 1

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

ERICSSON INC., AND TELEFONAKTIEBOLAGET LM ERICSSON, **Plaintiff,** **v.** **TCL COMMUNICATION TECHNOLOGY HOLDINGS, LTD., TCT MOBILE LIMITED, AND TCT MOBILE (US), INC.,** **Defendant.**	**Civil Action No. 2:15-cv-00011-RSP** **JURY TRIAL**

DECLARATION OF MARK JONES, PH.D. IN SUPPORT OF PLAINTIFFS' OPENING CLAIM CONSTRUCTION BRIEF

I, Mark Jones, declare as follows:

I. INTRODUCTION

1. I make this declaration in support of Plaintiffs Ericsson Inc. and Telefonaktiebolaget LM Ericsson's ("Ericsson") Opening Claim Construction Brief. Unless otherwise noted, the statements made herein are based on my personal knowledge, and if called to testify in Court, I could and would testify competently and truthfully with regards to this matter.

2. My name is Mark Jones. This declarations was prepared at the behest of McKool Smith, P.C. on behalf of their client Ericsson. The purposes of this declaration is to support Ericsson's Opening Claim Construction Brief. I understand this declaration is to be used in the matter of Ericsson, Inc., *et al. v. TCL Communication Technology Holdings, LTD, et al.*, 2:15-cv-11-RSP. I have been asked to review the below identified patents and related materials and based upon that review to provide my expert opinion regarding the proper construction for various terms.

3. I am being compensated at my usual consulting rate of $450 per hour for my work related to this dispute. My compensation is in no way dependent on the outcome of this dispute or the testimony or opinions that I give.

4. My curriculum vitae and testimony list are included in Exhibit A to this declaration.

5. My opinions and conclusions are fully discussed in later sections of this report.

6. In reaching these opinion and conclusions, I have relied upon my education, experience and training, my review of the patents, the patent prosecution history, and my review

of the evidence produced in this matter. A list of materials relied upon is provided at the end of this report.

7. I wish to reserve any right that I may have to supplement this declaration if further information becomes available or if I am asked to consider additional information. Furthermore, I wish to reserve any right that I may have to consider and comment on any additional expert statements and testimony of TCL's experts in this matter. I may also rely on demonstrative exhibits to explain my testimony and opinions.

a. Education and Experience

8. I am a Professor of Electrical and Computer Engineering at Virginia Tech in Blacksburg Virginia. I graduated summa cum laude from Clemson University in 1986 with a B.S. in Computer Science and a minor in Computer Engineering while holding a National Merit Scholarship and the R. F. Poole Scholarship. I then graduated from Duke University in 1990 with a PhD in Computer Science while holding the Von Neumann Fellowship.

9. Upon graduation, I joined the Department of Energy at their Argonne National Laboratory facility. My responsibilities there included the design and use of software for computers with hundreds of processing elements. This software was designed for compatibility with new parallel computer architectures as they became available as well as with other large software components being written in the Department of Energy. While with DOE, I received the IEEE Gordon Bell Prize.

10. In 1994, I joined the Computer Science faculty at the University of Tennessee. My teaching responsibilities included computer architecture and computer networking. My research interests included the design and use of software that used the collective power of large

groups of workstations. While at the University of Tennessee, I received a CAREER Award from the National Science Foundation.

11. In 1997, I joined the Electrical and Computer Engineering faculty at Virginia Tech. My teaching responsibilities have included the design of embedded systems, computer organization, computer architecture, a variety of programming courses, and parallel computing. I have been cited multiple times on the College of Engineering's Dean's List for teaching.

12. In addition to the activities, education, and professional experience listed above, I have been involved in research projects that contribute to my expertise relating to this report. While at Virginia Tech, I have been a primary or co-investigator on government and industrial research grants and contracts in excess of five million dollars.

13. The majority of the research contracts undertaken in the laboratory have involved collaboration and coordination with other groups to build a larger system. My responsibilities under the SLAAC project (a collaborative effort funded by the Defense Advanced Research Projects Agency involving the University of Southern California, Sandia National Laboratory, Los Alamos National Laboratory, Brigham Young University, UCLA, Lockheed-Martin, and the Navy) included the development of a software system for monitoring, configuring, and controlling a networked collection of computers hosting specialized computer hardware. As part of the DSN project (a collaborative effort funded by the Defense Advanced Research Projects

14. Agency involving UCLA and USC), I was responsible for designing algorithms and software for controlling and monitoring a large network of autonomous computer sensor nodes. This software was integrated with software from several other teams around the country for a set of field demonstrations over a three-year period.

15. In the TEAMDEC project for the Air Force Research Laboratory, I led an effort to design and construct a collaborative, Internet-based decision making system. This Java-based system provided a geographically diverse team with Internet based tools to enable collaborative decision-making. On the server side, the system architecture made extensive use of database technology. This work was awarded first prize at the 2002 AOLCIT Research Day.

16. Another aspect of my work has involved computer security. As an example, one project included designing and implementing a computer architecture that protects the programs (and data) on the system from being reverse-engineered.

17. Other projects have involved the close coupling of computer hardware and software, including the writing of device drivers and simple operating systems, the design of hardware circuits, the design of new system architectures integrating low power data storage, architectures for secure computing, the modification of complex operating systems, and software for mediating between complex software packages. My work in e-textiles has focused on new architectures that integrate fault tolerant networks. I have designed image transmission systems for reliably transmitting images over wireless links using compression and error-correction techniques.

18. A detailed record of my professional qualifications is set forth in the attached Appendix A, which is my curriculum vitae, including a list of publications, awards, research grants, and professional activities.

b. Materials Reviewed

19. In connection with this declaration, I have read U.S. Patent No. 7,149,510 ("the '510 patent"), U.S. Patent No. 6,418,310 ("the '310 patent"), and U.S. Patent No. 6,535,815

("the '815 patent") (the "patents-in-suit"). I have also reviewed the prosecution histories for these patents and the documents cited in this declaration.

20. I have reviewed the proposed construction and evidence disclosed in the parties' Joint Claim Construction Chart in connection with these claim construction proceedings. My opinions regarding claim construction are based on my understanding of the parties' proposed constructions as of the date of this declaration. If the parties alter those constructions after this declaration is submitted, I may, if appropriate and permitted, submit a supplemental declaration addressing any new constructions.

c. Level of Ordinary Skill in the Art

21. I have been asked to offer my opinion regarding the level of ordinary skill in the art with respect to each of the Asserted Patents. In my opinion, with regard to the '510 patent, a person of ordinary skill in the art would have (1) a degree in computer science or similar discipline and at least two years of experience in the design and development of mobile devices and computer architecture, or (2) at least 5 years experience in the design and development of mobile devices and computer architecture. This description is approximate, and a higher level of education or skill might make up for less experience, and vice-versa.

22. In my opinion, with regard to the '310 patent, a person of ordinary skill in the art would have been someone with (1) a Bachelors of Science in computer science or similar discipline and at least 2 years of experience in software design and development related to embedded systems programs, or (2) at least 5 years of experience in software design and development related to embedded systems programs.

23. In my opinion, with regard to the '815 patent, a person of ordinary skill in the art would have a degree in computer engineering, computer science, electrical engineering, applied

physics or a related field and at least two years of experience in the design and development of location-based services systems and/or devices. This description is approximate, and a higher level of education or skill might make up for less experience, and vice-versa.

d. Scope of Opinions

24. I understand the parties have provided agreed upon construction of various terms in the claims of the Asserted Patents. I have been asked to provide my opinions regarding the meaning of certain disputed claim terms as understood by one of ordinary skill at the time of the invention. My opinions are based on my understanding of what the disputed claim terms and proposed construction were, and what the evidence relied upon by the parties was, as of the time that I executed this declaration.

e. Legal Standards Relied Upon

25. Certain legal principles that relate to my opinions have been explained to me.

26. I have been informed that ultimately the Court will determine the matter of how specific terms shall be construed. The intent of this declaration is to help inform the Court how a person of ordinary skill in the art would understand the meaning of certain disputed claim terms in the context of the Asserted Patents' claims, specification, and prosecution history in a manner that will assist the Court in the process of finding a proper set of constructions.

27. It is my understanding that, generally, terms found in a patent claim should be given their plain and ordinary meaning, as a person of ordinary skill in the appropriate art would understand them. Further, it is my understanding that a patentee can decide to act as their own lexicographer by explicitly defining terms to have specific meaning within the bounds of the patent specification. Finally it is my understanding that statements made to the patent office by the patentee or their legal representative during prosecution can serve to illuminate the proper

scope of claim terms and such statements must be considered when one searches for the appropriate claim construction. I have endeavored, to the best of my ability, to take into account all of these factors during the process of my analysis.

28. In determining the meaning of the claims, I have followed my ordinary practice for claim construction. My analysis comports with long-established principles of claim construction—giving a claim term its ordinary meaning that one of skill in the art, at the time of the invention and in light of the patent's specification and prosecution history, would have given it, except in two unusual circumstances: (1) where the intrinsic record provides a special definition for the term; or (2) where the patentee disclaims a portion of the term's ordinary meaning.

II. DISPUTED CLAIM TERMS FOR THE '815 PATENT

a. "compute/computing said current position of said mobile terminal"

Ericsson's Proposal	TCL's Proposal
plain and ordinary meaning, no construction necessary	determine/determining the current position of the mobile terminal using GPS calculations
Claims 11-12 and 15-16 of the '815 patent.	

29. It is my opinion that a person of ordinary skill in the art at the time of the patents reading the claims would have understood the terms "compute said current position of said mobile terminal" and "computing said current position of said mobile terminal" to have their plain and ordinary meaning. TCL's proposed construction to limit these terms to only those calculations made using GPS calculations is incorrect because, taken in the context of the specification, one of skill in the art at the time of the invention would have understood that other positioning techniques, such as "cellular" positioning techniques could also be used.

30. The '815 Patent specification discloses embodiments directed to cellular positioning methods based on "cell position information" and "the cell identities of requesting mobile terminal" to estimate the position of a mobile device. '815 Patent at 3:49-55 ("Furthermore, the location server 18 may have access, either locally or through a network, to a database 22 containing cell position information, which it delivers as aiding data based on the cell identities of the requesting mobile terminal 100. Cell location can be used to provide an approximate location of a mobile terminal.")

31. The specification also makes clear that the invention is not limited to "GPS receivers" but rather extends to other types of "positioning receivers." *See* '815 Patent at 1:6-7 ("the present invention relates generally to mobile terminals equipped with a positioning receiver, such as a GPS receiver."). In one embodiment, the '815 Patent explains that position calculations can be made by "GPS receiver 101" or "microprocessor 116." '815 Patent at 7:10-13 ("Once the GPS receiver 101 or microprocessor 116 has received the new aiding data, it proceeds to compute a final position/time solution that is expected to meet QoS requirements."). As shown in Figure 2, the "microprocessor 116" is a component of "radio transceiver 110" and connects to a cellular network via "antenna 114." According to the '815 Patent, the "microprocessor 116 controls the operation of the radio transceiver and implements the communication protocols used by the mobile communication system 10." See '815 Patent at 5:1-3.

32. In addition to the express examples provided in the specification, one of ordinary skill in the art would have understood that terms "compute said current position of said mobile terminal" and "computing said current position of said mobile terminal" to not be limited to only

GPS calculations because other positioning methods not utilizing GPS were known to those having ordinary skill in the art.

b. "Positioning receiver"

Ericsson's Proposal	TCL's Proposal
plain and ordinary meaning, no construction necessary	GPS receiver
Claims 17-19 of the '815 patent.	

33. It is my opinion that a person of ordinary skill in the art at the time of the patent reading the claims would have understood the "positioning receiver" to be given its plain and ordinary meaning. As with the terms "compute/computing said current position of said mobile terminal," TCL's proposed construction seeks to limit the claims of the '815 Patent to only GPS estimates. This is incorrect because, as discussed above, the '815 Patent discloses obtaining position estimates based on "cellular" positioning methods by utilizing a "microprocessor 116" in a "transceiver chip" to estimate the position of a mobile terminal based on "cell identities of the requesting mobile terminal." *See* '815 Patent at 3:49-56, 5:1-5 and Figure 2.

34. Additionally, the patentee indicated that the term "positioning receiver" is broader than the term "GPS receiver." '815 Patent at 1:7-12 ("The present invention relates generally to a mobile terminal equipped with a positioning receiver, such as a GPS receiver…"). Therefore, one of ordinary skill in the art would have understood a GPS receiver to be just one example of a positioning receiver.

c. "Remote source"

Ericsson's Proposal	TCL's Proposal
plain and ordinary meaning, no construction necessary	a device remotely located from the mobile terminal that is the origin and/or place of procurement of aiding data
Claims 1-3, 15, and 17-19 of the '815 patent.	

35. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "remote source" to have its plain and ordinary meaning, particularly when viewed in context of the surrounding claim language (obtaining additional aiding data from a remote source external to the mobile terminal). Claim 1 requires that a mobile terminal perform the step of "obtaining additional aiding data from a remote source." In the context of this claim language, one of ordinary skill would have understood that the term "from" refers to the device where aiding data is obtained from.

36. This interpretation is consistent with the specification, which shows that where aiding data is obtained "from" is not necessarily where it originates. *See* '815 Patent at 3:38-40 ("The function of the location server 18 is to provide aiding data to mobile terminals 100 within the mobile communication system 10 when needed to perform position calculations. The location server 18 may capture the aiding data from a variety of sources, including a GPS receiver 20 that is locally attached."). As this makes clear, the mobile phone obtains the aiding data "from" a remote source (the location server 18), not "from" the "variety of sources" that supply aiding data to the location server. Taken in the context of the broader claim language and the specification, one of ordinary skill in the art would have understood that the term "remote source" would have its plain and ordinary meaning.

d. "Quality of service"

Ericsson's Proposal	TCL's Proposal
plain and ordinary meaning, no construction necessary; if construction is necessary, "a level of performance"	an indication of grade or level of performance associated with a computed position estimates
Claims 1-3, 8-12, and 15-19 of the '815 patent.	

37. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "quality of service" to have its plain and ordinary meaning. In the alternative, a person of ordinary skill in the art would have understood this term to mean "a level of performance." TCL's proposed construction is incorrect because it overlooks the fact that "quality of service" is used in claim 1 in the context of the broader limitation "determining a desired quality of service." This step does not require computing a position estimate. The proposed construction adds a requirement that the quality of service be "associated with a computed position estimate[]."

38. One of ordinary skill in the art would disagree with TCL's proposed construction for the additional reason that it construes "quality of service" in the past through the requirement that it be "associated with a computed position estimates". This is not correct. Both the wording of claim 1 and the understanding of the term by one of skill in the art indicate that, instead, the quality of service is the goal to be met when the position is computed. Further, a given computation may (or may not) meet that quality of service (as the claims make clear)..

39. In view of this, one of ordinary skill in the art would understand "quality of service" to have its plain and ordinary meaning. In the alternative, one would understand it to mean "a level of performance."

e. "requesting application"

Ericsson's Proposal	TCL's Proposal
plain and ordinary meaning, no construction necessary	a software program running on the mobile terminal or external to the mobile terminal that causes an estimate of current position to be calculated
Claim 8 of the '815 patent.	

40. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "requesting application" to have its plain and ordinary meaning. The specification makes clear that a "requesting application" is an application that makes a request for a location update. *See* '815 Patent at 5:26-29 ("According to the present invention, a positioning application 26 running either within the mobile terminal 100 itself or in the mobile communication network 10 requests a position update from the mobile terminal."). Given the clarity of the claim language (neither the words "requesting" or "application" require a construction) and the language of the specification, it is simply not necessary to construe the broader term "requesting application." TCL's construction improperly adds the limitation of "causes an estimate of current position to be calculated." This addition improperly imports a limitation (actually calculating an estimate of current position) into the claims that is not present in either claim 1 or claim 8, as neither claim requires actually calculating an estimate of current position. Dependent claims 11 through claims 16 do discuss "computing said current position," demonstrating that when the patentee wanted to claim the actual determination of the current position, specific language was included to claim this step.

41. Additionally, TCL's proposed construction is incorrect in that it ties the term "requesting application" to being the "cause" of the computation. The "requesting application" need not be what "causes" a position computation to be performed. Rather, the "cause" of the location request could be the reception of the request at the mobile terminal, or the presence of sufficient aiding data. One of ordinary skill in the art would understand the term "requesting application" to have its plain and ordinary meaning.

III. DISPUTED CLAIM TERMS FOR THE '510 PATENT

a. "software services component"

Ericsson's Proposal	TCL's Proposal
a software component that includes a plurality of functional software units that each provides services to a user	a software component allowing applications to provide services to a user
Claims 1-5 and 7-11 of the '510 patent.	

42. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "software services component" to mean "a software component that includes a plurality of functional software units that each provides services to a user."

43. TCL's construction incorrectly reads out the requirement that the software services component include a "plurality of functional software units." The specification provides that the interface include a software services component that includes a plurality of functional software units that correspond to hardware units, each stack of hardware and software providing a service to the user. *See* '510 patent at 4:19-32. The "software stacks 30-38 of software component 22 each include hardware driver software 60-68 to operate the hardware units associated with each stack." *Id.*, at 4:67-5:2. The specification also cites and incorporates by reference U.S. Patent Application Ser. No. 10/359,835, which provides that "software stacks 30-38 of software services component 22 and their associated hardware units 40-48 define functional stacks that are structured into manageable pieces (software modules and hardware blocks) having clearly defined functionality and interfaces." U.S. Patent No. 7,536,181 at 3:65-4:2. Thus, a person of ordinary skill in the art would understand that the software services component includes a plurality of functional software units that each provides services to users.

44. TCL's construction also incorrectly provides that the software services component "allow applications to provide services to users." The only use of the word "allow" in the specification relates to whether or not an application has permission to access a requested

service. This determination is made by the decision entity of the claims, not the software services component.

b. "interface component"

Ericsson's Proposal	TCL's Proposal
plain and ordinary meaning, no construction necessary	a software component that isolates the software services component from the applications
Claims 1-5 and 7-11 of the '510 patent.	

45. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "interface component" to have its plain and ordinary meaning.

46. The patent repeatedly describes the interface component as "having at least one interface for providing access to the software services component for enabling application domain software to be installed, loaded, and run in the platform." *See* '510 patent, Abstract, 2:49-52, 2:67-3:3, 3:10-13. The claims use this same language to describe the interface component.

47. I disagree with TCL's proposed construction because it isn't consistent with the descriptions described in Summary of the Invention as cited above, but instead includes an additional limitation that is part of an exemplary embodiment. In this embodiment, the specification provides that that the interface component (1) has an API for installing, loading, and running applications, (2) isolates the mobile terminal platform assembly from the applications, and (3) provides various other services.

c. "interception module for receiving a request from the requesting application domain software to access the software services component"

Ericsson's Proposal	TCL's Proposal
plain and ordinary meaning, no construction necessary	software invoked to receive a request to access the software services component from requesting application domain software and

	pass the request to the decision entity
Claims 1, 10, and 11 of the '510 patent.	

48. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "interception module for receiving a request from the requesting application domain software to access the software services component" to have its plain and ordinary meaning.

49. TCL's construction largely mirrors the claim language, except for the words in italics: "*software invoked to* receive a request to access the software services component from requesting application domain software *and pass the request to the decision entity.*" TCL's construction incorrectly imports two extraneous limitations: that the interception module (1) be invoked and (2) "pass the request to the decision entity."

50. A person of ordinary skill in the art would understand that the interception module does not necessarily have to pass the request to a decision entity. For example, the specification provides that instead of sending a permission request to the security access manager, the interception module can make a decision locally. *See* '510 patent, 8:50-52.

51. A person of ordinary skill in the art would also understand that the interception module can receive, or intercept, a request without being "invoked." Rather than being inactive and waiting to be invoked, the interception module can run continuously waiting for requests. Indeed, a preferred embodiment provides that the interception module "intercepts" the request to access the software services component. *See* '510 patent, 8:3-5.

IV. **"identification of the requesting application domain software"**

Ericsson's Proposal	**TCL's Proposal**
plain and ordinary meaning, no construction necessary	any information indicative of an application that requests access to a software services component

Claim 2 of the '510 patent.

52. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "identification of the requesting application domain software" to have its plain and ordinary meaning.

53. TCL acknowledges, and I agree, that a person of ordinary skill in the art understands the term "requesting application domain software" to have its plain meaning, as TCL did not propose this term for construction where it first appears in claim 1. Thus the only words TCL appears to be construing are "identification of." A person of ordinary skill in the art certainly knows what it means to identify application domain software and the embodiments in the specification are consistent with this understanding (e.g., '510 patent, 10:12-14). A person of ordinary skill in the art would not understand "identification" to mean "any information indicative of." This would lead to absurd results. For example, under TCL's construction, information indicating the size of an application domain software or programming language used to write an application domain software would satisfy this claim term, but a person of ordinary skill in the art would not consider such information to be an "identification" of the requesting application domain software.

54. TCL's construction also incorrectly provides that an identification of *any* requesting application domain software is appropriate. The claim as written relies on the application domain software in claim 1 for antecedent basis. Thus, contrary to TCL's construction, the requesting application must be "the" requesting application domain software from claim 1.

V. **"decision cache"**

Ericsson's Proposal	**TCL's Proposal**

plain and ordinary meaning, no construction necessary	cache storing decisions associated with past service requests
Claim 4 of the '510 patent.	

55. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "decision cache" to have its plain and ordinary meaning.

56. The full claim limitation requires a "decision cache for maintaining a record of requests by application domain software for determining if a permission decision has previously been granted to the requesting application domain software." A person of ordinary skill in the art would understand that the claim already explains the nature of the records that are stored in the decision cache. TCL's proposed a construction for "decision cache" construes neither the term "cache" nor the term "decision."

VI. **"a cache with the rules and policies of the decision entity"**

Ericsson's Proposal	**TCL's Proposal**
plain and ordinary meaning, no construction necessary	a cache for storing permissions also stored at the decision entity
Claim 11 of the '510 patent.	

57. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "a cache with the rules and policies of the decision entity" to have its plain and ordinary meaning. A person of ordinary skill in the art would understand that the claim already explains the nature of what is stored in the cache and TCL's proposed construction does not construe the term "cache."

58. A person of ordinary skill in the art would not understand that this term requires storing permissions separately at a decision entity. TCL's construction necessarily separates the claimed decision cache from the decision entity, but this reads out one of the preferred embodiments. The specification provides that instead of sending a permission request to the

security access manager, the interception module, which includes a cache, can make a decision locally. '510 patent, 8:50-52. Thus, the decision module can also be the decision entity. TCL's construction reads out this preferred embodiment.

V. DISPUTED CLAIM TERMS FOR THE '310 PATENT

a. "control program"

Ericsson's Proposal	TCL's Proposal
plain and ordinary meaning, no construction necessary; if construction is necessary, "a program running on a control processor"	program capable of handling layer-3 signaling messages exchanged between the network and the portable wireless communications device and capable of controlling the radio functions of the device in response to the layer-3 signaling messages
Claims 1, 13, and 18 of the '310 patent.	

59. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "a control program" to have its plain and ordinary meaning, which is "a program running on a control processor." The specification provides no express disavowal or redefinition of the term.

60. The claim language already provides that the control program controls "the operation of said transmitter and said receiver in response to said control messages," and the parties have agreed that the term "control message" means "layer-3 signaling messages exchanged between the network and the network station." Thus, a person of ordinary skill in the art understands that the claim language defines the relationship of the control program to control messages.

61.

b. "a control program in [JAVA language]/[an interpretive programming language]"

Ericsson's Proposal	TCL's Proposal
a program substantially written in JAVA code	a program capable of handling layer-3 signaling

running on a control processor AND a program substantially written in code expressed in a form that can be recognized and processed by an interpreter running on a control processor	messages exchanged between the network and the portable wireless communications device and capable of controlling the behavior of the portable wireless communications device in response to the layer-3 signaling messages, in the form of Java source code or Java bytecodes AND a program capable of handling layer-3 signaling messages exchanged between the network and the portable wireless communications device and capable of controlling the radio functions of the device in response to the layer-3 signaling messages, in the form of source code in an interpretive language or bytecodes to be interpreted
Claims 1 and 13 of the '310 patent.	

62. A person of ordinary skill in the art at the time of the patent reading the claims would have understood the term "a control program in JAVA language" to mean "a program substantially written in JAVA code running on a control processor." Similarly, a person of ordinary skill in the art would understand the term "a control program in an interpretive programming language" to mean "a program substantially written in code expressed in a form that can be recognized and processed by an interpreter running on a control processor."

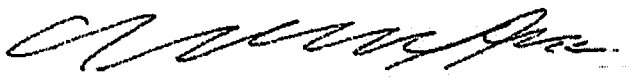
63. TCL's construction effectively addresses the construction of the terms (1) "control program" and (2) "in [JAVA language]/[an interpretive programming language]."

64. TCL has effectively provided two different constructions of "control program." TCL's construction for "control program" in Java language requires that the control program be "capable of controlling the behavior of the portable wireless communications device . . . ." TCL's construction for "control program" in an interpretive language requires that the control program "be capable of controlling the radio functions of the device . . . ." A person of ordinary

skill in the art would not understand the term "control program" as it appears in claims 1 and 13 to have different meanings. For the reasons I provided above, "control program" should be given its plain and ordinary meaning.

65. TCL's construction also provides that "in Java language" should be construed as "in the form of Java source code or Java bytecodes" and "in an interpretive language" be construed as "in an interpretive language or bytecodes to be interpreted." Ericsson's construction clarifies that whether the control program be in Java language or an interpretive language, it need not be written completely in that interpretive language. I agree with Ericsson's construction. In practice, programs written in interpretive languages are often not written completely in that interpretive language. Rather, they often include some native machine code. For example, virtually all Java programs use an API to call upon functionality embodied in libraries of commonly used computer routines. The code that lies underneath that API is often not Java code. The specification reflects this as can be seen in the following: "[i]n the invention, a substantial part of the software control program for processor 117 is written in JAVA source code and stored as JAVA bytecodes 300 in ROM 117a instead of being compiled to and stored in the form of native machine code." '310 patent at 5:67-6:8.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. This declaration is executed on August 14, 2015, at Blacksburg, VA.



Dr. Mark Jones

GENERAL INFORMATION

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Newport News VA; Redlands CA; Dallas TX; Blacksburg VA; Clemson SC; Durham NC; Chicago IL; Knoxville TN; Blacksburg VA

EMPLOYMENT EXPERIENCE

Professor, Department of Electrical and Computer Engineering, Virginia Tech, 8/97-present (since 6/07 at the rank of Full Professor).

Chief Technology Advisor, *Ocean Tomo, LLC,* August 2013 to December 2013.

Professor, Department of Computer Science, University of Tennessee, 8/93-7/97 (at the rank of Assistant Professor).

Assistant Computer Scientist, Mathematics and Computer Science Division, Argonne National Laboratory, Chicago, IL, 6/90 to 7/93.

EDUCATION

Ph.D., Duke University, Computer Science, May 1990.

B.S., Clemson University, Computer Science, summa cum laude, May 1986.

RECOGNITION AND AWARDS

Virginia Bioinformatics Faculty Fellow
1st prize and Honorable Mention at AOL-CIT Research Day
Virginia Tech College of Engineering Dean's List for Teaching
NSF CAREER Award
University of Tennessee Science Alliance Award
Atanasoff Best Paper Award
Gordon Bell Prize
Von Neumann Fellowship
R. F. Poole Scholarship
National Merit Scholar

EXPERT TESTIMONY

Blackboard v. Desire2Learn
United States District Court for the Eastern District of Texas
Overview: Patent infringement case involving Internet-based educational software employing role-based access control
Testified: Jury trial (infringement and validity), injunction hearing, contempt hearing, and deposition (4 times)

TechRadium v. Blackboard
United States District Court for the Eastern District of Virginia

United States District Court for the Eastern District of Texas
Overview: Patent infringement case involving network-based emergency notification systems
Testified: Preliminary injunction hearing and deposition

Computer Associates v. Digex
Circuit Court for Prince George's County Maryland
Overview: Contract dispute involving enterprise management systems
Testified: Jury trial and deposition

Computer Associates v. Retired Persons Services
United States District Court for the Eastern District of Virginia
Overview: Contract dispute involving enterprise management systems
Testified: Deposition

DVSI v. University of Phoenix and Walden University
United States District Court for the Eastern District of Virginia
Overview: Patent infringement case involving network-based educational software employing digital rights management
Testified: Deposition (3 days)

VirnetX v. Microsoft
United States District Court for the Eastern District of Texas
Overview: Patent infringement case involving VPN software in Microsoft Windows and Microsoft's Unified Communications software
Testified: Jury trial (infringement and validity) and deposition (3 days)

TechRadium v. Twitter
United States District Court for the Southern District of Texas
Overview: Patent infringement case involving network-based notification systems
Testimony: Deposition

Bedrock Computer Tech v. Softlayer et al
United States District Court for the Eastern District of Texas
Overview: Patent infringement case involving data structures in the Linux operating system's network stack
Testimony: Jury trial v. Google (infringement and validity), Jury trial v. Yahoo (infringement and validity) and deposition (3 days)

CEATS v. Continental Airlines et al
United States District Court for the Eastern District of Texas
Overview: Patent infringement case involving Web-based interactive seat maps
Testimony: Jury trial (infringement and validity) and deposition (2 days)

VirnetX v. Cisco et al
United States District Court for the Eastern District of Texas
Overview: Patent infringement case involving secure communications, VPNs, and Voice-over-IP
Testimony: Jury trial v. Apple (infringement and validity), Jury trial v. Cisco (validity), and deposition (3 days)

Summit6 v. Research In Motion et al
United States District Court for the Northern District of Texas
Overview: Patent infringement case involving network-based photo uploading tools on smartphones and web browsers

Testimony: Jury trial v. Samsung (infringement and validity) and deposition (3 days)

Ericsson v. Samsung
International Trade Commission
Overview: Patent infringement case involving Java technology and touchscreen technology on smartphones
Testimony: Deposition

AT Engine Controls LTD. v. Goodrich Corp and Goodrich Pump & Engine Control Systems, Inc.
United States District Court for the District of Connecticut
Overview: Trade secret case involving an embedded computing system design for helicopter engine control
Testimony: Deposition

SmartFlash LLC. v. Apple, et. al.
SmartFlash LLC. v. Samsung, et. al.
United States District Court for the Eastern District of Texas
Overview: Patent infringement case involving digital rights management and content distribution
Testimony: Jury trial v. Apple (infringement and validity) and deposition (4 days)

Unwired Planet v. Apple
United States District Court for the Northern District of California
Overview: Patent infringement case involving several technologies related to mobile devices
Testimony: Deposition (3 days); technology tutorial presentation to the Court

Facebook v. Rembrandt Social Media
Patent Trial and Appeal Board
Overview: Validity of a patent in the area of a web-based diary system
Testimony: Deposition

Motorola Mobility v. Intellectual Ventures
Patent Trial and Appeal Board
Overview: Validity of a patent in the area transmitting and browsing preformatted information
Testimony: Deposition

Summit6 v. Apple et al
United States District Court for the Northern District of Texas
Overview: Patent infringement case involving network-based photo uploading tools on smartphones and web browsers
Testimony: Deposition

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health monitoring," $306,083, 7/1/2011-6/30/2014.

DARPA, "RECE," With BBN, $30,000, 4/16/09-10/16/09.

NSF, "Investigating a Novel Embedded Processor Architecture for Electonic Textiles in Wearable and Pervasive Computing," $220,000, 12/1/08-11/30/10.

NSF, "Fundamental Algorithms to Enable the Simulation of Multi-Scale Biological Systems," $200,000, 9/1/07-8/31/10.

AFRL, "Phase II: Amorphous Soft-Core Processor for Hardware Anti-Tamper," ~$230,000, 11/1/06-10/31/08.

Intel, "E-Textile Rug for Gait Analysis, People Tracking and Emergency Directions," $15,000, 6/1/06-12/31/06.

Carilion, "Quantitative Measurement and Modeling of Early Events in Influenza Pathogenesis," $20,000, 7/1/05-6/30/06.

AFRL, "Phase I: Wearable Computer for Enhanced Situation Awareness," $30,000, 5/1/06-1/1/07.

AFRL, "Phase I: Amorphous Soft-Core Processor for Hardware Anti-Tamper," $35,000, 1/1/06-11/1/06.

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National Science Foundation (NSF), "CRI", (e-textiles equipment), ~$80,000, 8/05-7/07.

Harris Corporation, "Exploiting the Reconfigurability of a Software-Defined Radio Platform," $161,070, 9/1/05-6/30/06.

DARPA, "Phase I: Technology for Trusted Circuits," $31,000, 3/1/05-9/15/05.

Harris Corporation, "Partial Reconfiguration Support for the Harris Programmable Modem Platform," $73,448, 12/01/04-6/30/05.

NSF, "Phase I: An Electronic Textile System for Gait Analysis", $33,000, 1/1/2005-6/30/2005.

*Office of Naval Research (*ONR). "AWINN." $452,300, 12/20/04-7/31/06.

Office of Secretary of Defense, "Phase II: Reconfigurable Processor Technology for Software Protection," SBIR Subcontract with Luna Innovations, $237,581, 6/04-5/06.

NSF, REU Supplement to ITR: Tailor-Made: Design of e-Textile Architectures for Wearable Computing, NSF, $12,000, 6/1/2005 – 8/31/2005.

Office of Secretary of Defense, "Phase I: Reconfigurable Processor Technology for Software Protection," SBIR Subcontract with Luna Innovations, $33,000, 8/03-2/04.

National Science Foundation (NSF), "ITR: Tailor-Made: Design of e-Textile Architectures for Wearable Computing", $399,000, 8/02-8/06.

NSF, REU Supplement to above grant, $10,000.

NSF, REU Supplement to above grant, $6,000.

NSF, "A Toolbox of Scalable Algorithms and Software for Advanced Scientific Computing Applications", $300,000, 4/03-4/06.

*Defense Advanced Research Projects Agency (*DARPA). Computational Fabrics, $217,000, 3/01-12/02. Subcontract from ISI/University of Southern California.

*Office of Naval Research (*ONR). Secure Configurable Radio. $751,000, 4/00-4/04.

NSF, SUCCEED, $33,000, 9/1/01-8/31/02.

National Science Foundation (NSF). Parallel unstructured mesh algorithms, Amount: $145,023, 10/99-9/02.

DARPA, Development of algorithms and software for the control of distributed, dynamic sensor networks, Amount $411,625, 6/99-6/02.

DARPA, Subcontact with USC/ISI. Development of algorithms and runtime software for systems of configurable computers, Amount $160,000, 10/00-10/01.

Department of Energy, Development of algorithms and software for massively parallel architectures, Amount: $145,000, 12/98-11/01.

DARPA, Development of Java-based tools and applications for fast, flexible run-time reconfiguration of configurable computing devices, Amount: $345,574, 9/99-9/01.

DARPA, Development of an application programming interface, algorithms, and applications for run-time reconfiguration on novel adaptive computing architectures, Amount: $250,000, 6/99-6/01.

Lockheed-Martin/Sanders, A Wireless Link for Remote Telemetry of Compact Airborne System, $125,000, 5/00-4/01.

DARPA, Development of algorithms and runtime software for systems of configurable computers, Amount $169,792, 11/99-10/00.

National Security Agency (NSA), Software for the translation of JBits FPGA programs to EDIF programs, Amount $75,000, 9/99-7/00.

DARPA, Construction of an API & applications for the control of distributed systems of configurable computing nodes, Amount $162,886, 9/98-10/99.

NSF, Career Award: Parallel algorithms and software for unstructured mesh computations, Amount: $125,881, 7/96-7/99.

Air Force Research Laboratory, Research and development of an Internet-based, interactive, decision making program, Amount: $97,425, 11/97-5/99.

NSF, Equipment funding for a 16-node cluster of configurable computers, Amount: $85,000, 12/97-12/98.

NSF, Scientific applications in a distributed computing environment, Amount: $318,807, 7/95-7/98.

NSF, Equipment funding for an ATM-based cluster of workstations, Amount, $100,000, 1/96-12/96.

NSF, Workshop organized at Argonne National Laboratory, Amount, $10,000, 1996.

PATENTS

Inventor, United States Patent No. 8,473,754, Hardware-Facilitated Secure Software Execution Environment.

SOFTWARE

SLAAC/ACS API (4/99): Software for the control of complex systems of configurable computing nodes and high-speed networks. This code is being distributed to the ACS community. Developed in Configurable Computing Laboratory with Peter Athanas.

BlockSolve (4/93 & 1/96): Software for solving large sparse linear systems on distributed memory architectures. This code has been distributed via netlib and ANL ftp and has been accessed by several hundred people as of 4/4/99. Developed at Argonne National Laboratory with Paul Plassmann.

LANZ (10/90): Software for solving the generalized eigenproblem on shared memory architectures. This code has been distributed via netlib and NASA and has been accessed by over 10,000 people as of 4/4/99. Developed at Duke University and Argonne National Laboratory with Merrell Patrick.

TEACHING RESPONSIBILITIES

Computer Programming
- ECE 5574, *Advanced Software Development for CAE*
- ECE 4574, *Large-Scale Software Development for Engineering Systems*
- ECE 3574, *Applied Software Design*
- ECE 2574, *Data Structures*
- ECE 1574, *Engineering Problem Solving with C++*

Computer Simulation and Modeling
- *CS 371, Numerical Analysis*
- *CS 594, Computational Modeling*

Computer Network, Architecture, and Organization
- ECE 2504, *Introduction to Computer Engineering*
- *CS 594, Internetworking with TCP/IP*
- ECE 4504, *Computer Organization*
- ECE 4534, *Design of Embedded Systems*
- ECE 5504 (formerly ECE 5515), *Computer and Network Architectures*
- ECE Special Studies: *Configurable Computing*, E-Textiles
- ECE 5984, *Java-Based Configurable Computing*
- ECE 6504, *Applications of Parallel and Distributed Computing*, TV course.
- CS 530, *Computer Systems Organization*

CEO of DISC, a student-run virtual corporation, for Fall 1998 and Spring 1999.
